git’n crazy

Or for a less lame and silly name: “git fundamentals”

The basics

- The repo
- The working tree
- The objects
- The index
- The commit

The repo

- Can be local only
- git init

Objects

- blobs
- trees
- commits
- tags
- *ish

more on objects

for the curious

- git ls-tree
- git cat-file -t
- git cat-file blob sha1

The commit

- Parent
- Tree
- author
- comitter
- message

A practical example

```
$ git show —format=raw
commit 0000002cc9531c22035f36af85176c686abae2d8
tree 0feacab8165403bbc4ddd7b1b355a28b7b10c63a
parent 000000fc1d31caa6293c2a66a5a92538c5862c6a
author CTF user <me@example.com> 1391022630 +0000
committer CTF user <me@example.com> 1391022630 +0000
    Give me a Gitcoin
    8ChbUECyn9BdzJNl

diff --git a/LEDGER.txt b/LEDGER.txt
index fe458e8..4b0656c 100644
--- a/LEDGER.txt
+++ b/LEDGER.txt
@@ -10,3 +10,4 @@ ludwig: 20
 pa: 30
 jim: 1
 evan: 1
+user-9vcstfvi: 1
```

tree

```
$ git ls-tree 0000002165431b2206f361f855728678610c632d8
100644 blob 4b0656c6105e822b233fcd3825d3475bcbe80654    LEDGER.txt
100644 blob 87f38a297428a131596518cc7898fb0dcf6cc19c    README.md
100644 blob a12b836b5550a0baa5efa827e086b94843efcd92    difficulty.txt
100755 blob ee5a31d4120b8308783e6d17f15e18f03912f697    miner
```

cat-file

$ git cat-file blob 4b0656c6105e822b233fcd3825d3475bcbe80654

Private Gitcoin ledger

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gdb: 24

siddarth: 42

christian: 32

andy: 13

nelhage: 45

carl: 30

ludwig: 20

pa: 30

jim: 1

evan: 1

user-9vcstfvi: 1

Ancestry References

- git show HEAD^
- git show HEAD^^
- git show HEAD~4
- HEAD^2 for merges
- git show master@{yesterday}

Working with the history

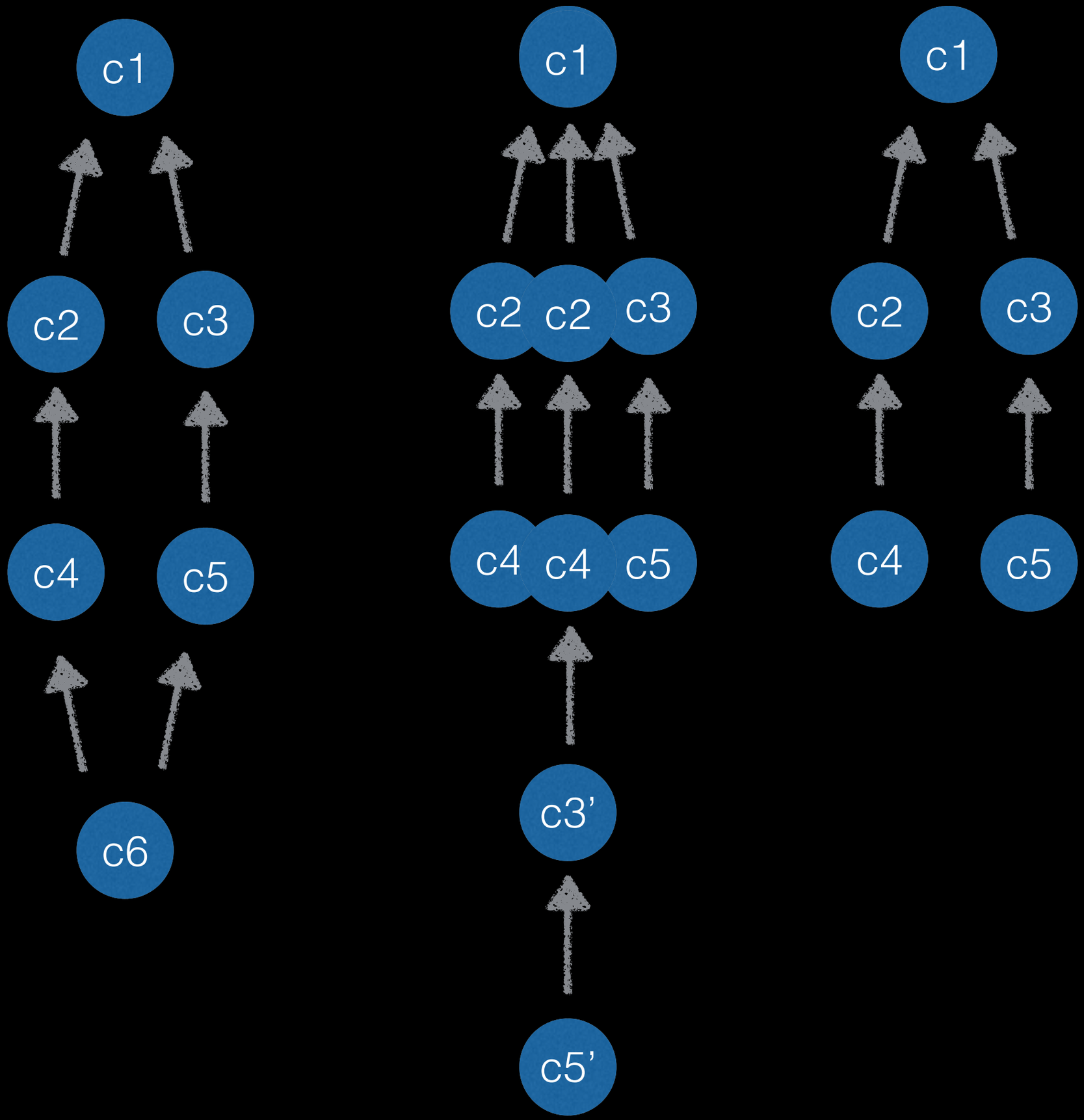
- Each commit references
  - its parent
  - its tree
- We can review the entire history of a particular commit

git log

- git log
- git log tree-ish
- git log *ish…*ish
- git log -u
- git log —format

Commit Ranges

- git log master..experiment
- git log experiment..master
- git log origin/master..HEAD
- $ git log refA..refB
- $ git log ^refA refB
- $ git log refB --not refA
- git log master...experiment


c1
c2
c3
c4
c5
c6
c1
c2
c2
c3
c4
c4
c5
c3'
c5'
c1
c2
c3
c4
c5

Working with remotes

- $ git remote -v

origin lvl1-gmgk2yiw@stripe-ctf.com:level1 (fetch)

origin lvl1-gmgk2yiw@stripe-ctf.com:level1 (push)

Working with remotes

- git fetch origin
- git merge origin master
- git pull

man is your friend

- seriously don’t be scurred
- man gittutorial
- man gittutorial-2
- man gitcore-tutorial

So you’re actually frightened of man?

(HTML docs)

- open /usr/local/Cellar/git/1.8.4.2/share/doc/git-doc/index.html

1. The Git User's Manual
    1. git-htmldocs/user-manual.html
2. Everyday Git with 20 Commands
    1. git-htmldocs/everyday.html

Questions?

Learn More

- http://git-scm.com/book
- http://pcottle.github.io/learnGitBranching/?demo